

Service Manual

Cassette Deck
RS-M07
 (Silver Face)

Concise Metal Tape-Compatible Cassette Deck
 with FL Meters and Automatic Tape Select



This is the Service Manual for the following areas.

- ☐ For all European areas except United Kingdom.
☐ For United Kingdom.



RS-M24 MECHANISM SERIES

Specifications

Track system:	4-track 2-channel stereo recording and playback	Outputs:	LINE; output level 400mV, output impedance 1.5k Ω or less load impedance 22k Ω over
Tape speed:	4.8 cm/s		HEADPHONES; output level 80mV, load impedance 8 Ω
Wow and flutter:	0.048% (WRMS), $\pm 0.14\%$ (DIN)	Bias frequency:	80 kHz
Frequency response:	Metal tape; 20—18,000Hz 30—17,000Hz (DIN) CrO ₂ tape; 20—18,000Hz 30—16,000Hz (DIN) Normal tape; 20—17,000Hz 30—15,000Hz (DIN)	Motor:	Electrical DC governor motor
Signal-to-noise ratio:	Dolby [*] NR in; 67 dB (above 5 kHz) Dolby NR out; 57 dB (signal level = max. recording level, CrO ₂ type tape)	Heads:	2-head system; 1-MX head for record/playback 1-ferrite double-gap head for erasure
Fast forward and rewind time:	Approx. 90 seconds with C-60 cassette tape	Power requirements:	AC; 110/220V, 50-60Hz, AC 240V only for United Kingdom.
Inputs:	MIC; sensitivity 0.25mV, input impedance 10k Ω applicable microphone impedance 400 Ω —10k Ω LINE; sensitivity 60mV, input impedance 43k Ω	Power consumption:	15W
		Dimensions:	29.7 cm(W) \times 12.3 cm(H) \times 23.0 cm(D)
		Weight:	4.0 kg

Specifications are subject to change without notice.

* 'Dolby' and the double-D symbol are trademarks of Dolby Laboratories.

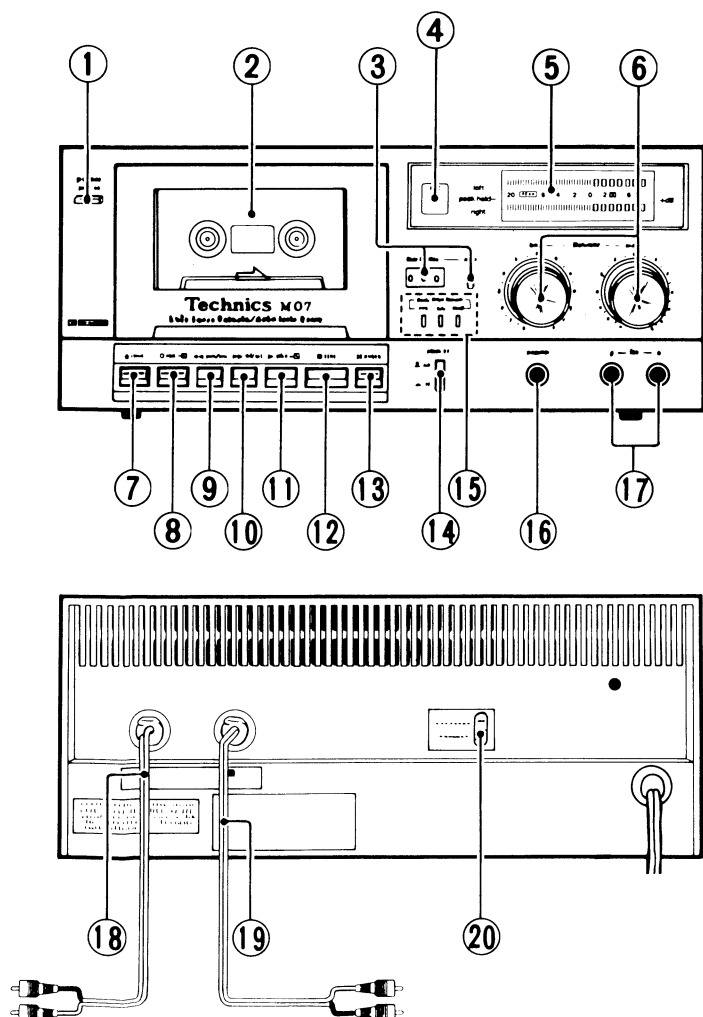
Technics

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LOCATION OF CONTROLS AND COMPONENTS



- ① Power switch [power (push on)]
- ② Cassette holder
- ③ Tape counter and Reset button (tape counter—reset)
- ④ Recording indicator (rec)
- ⑤ Fluorescent level meters
- ⑥ Input level controls [input level (left-right)]
- ⑦ Eject button (▲ eject)
- ⑧ Record button (○ rec—□)
- ⑨ Rewind/Review button (◀◀ rew/rev)
- ⑩ Fast forward/Cue button (▶▶ ff/cue)
- ⑪ Play button (▶ play—□)
- ⑫ Stop button (■ stop)
- ⑬ Pause button (|| pause)
- ⑭ Dolby noise-reduction switch [Dolby NR (▲out-▲in)]
- ⑮ Auto tape selector indicators
[Auto Tape Select (nor-CrO₂·Metal)]
- ⑯ Headphones jack (phones)
- ⑰ Microphone jacks [mic (L·R)]
- ⑱ Line output cord (LINE OUT)
- ⑲ Line input cord (LINE IN)
- ⑳ Voltage selector (VOLTAGE SELECTOR)

※ For all European areas except United Kingdom.

DISASSEMBLY INSTRUCTIONS

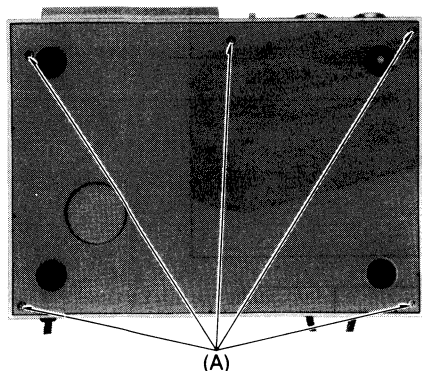


Fig. 1

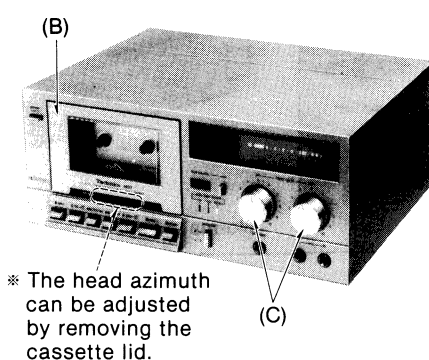


Fig. 2

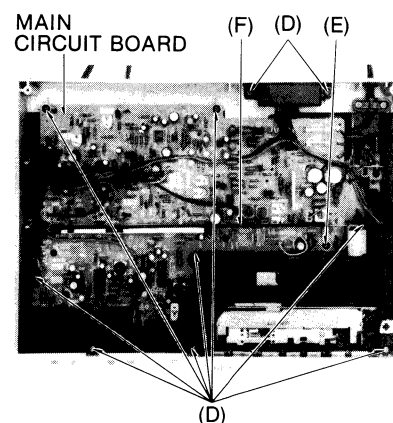


Fig. 3

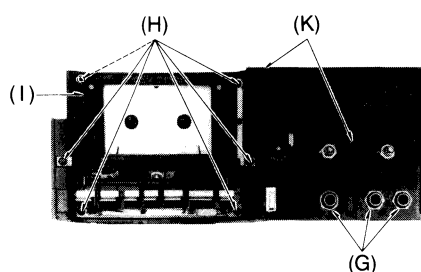


Fig. 4

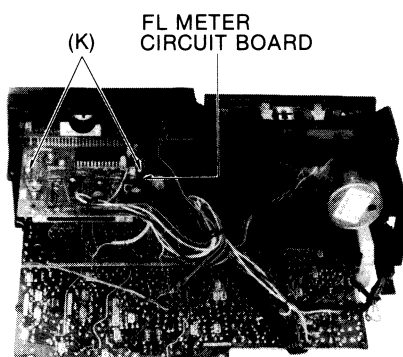


Fig. 5

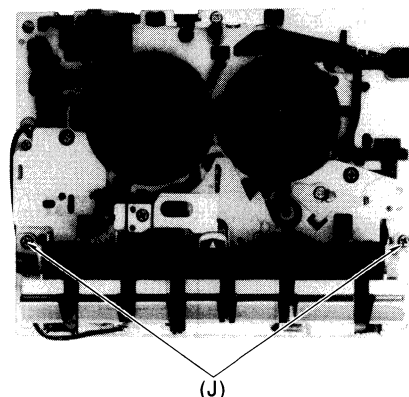
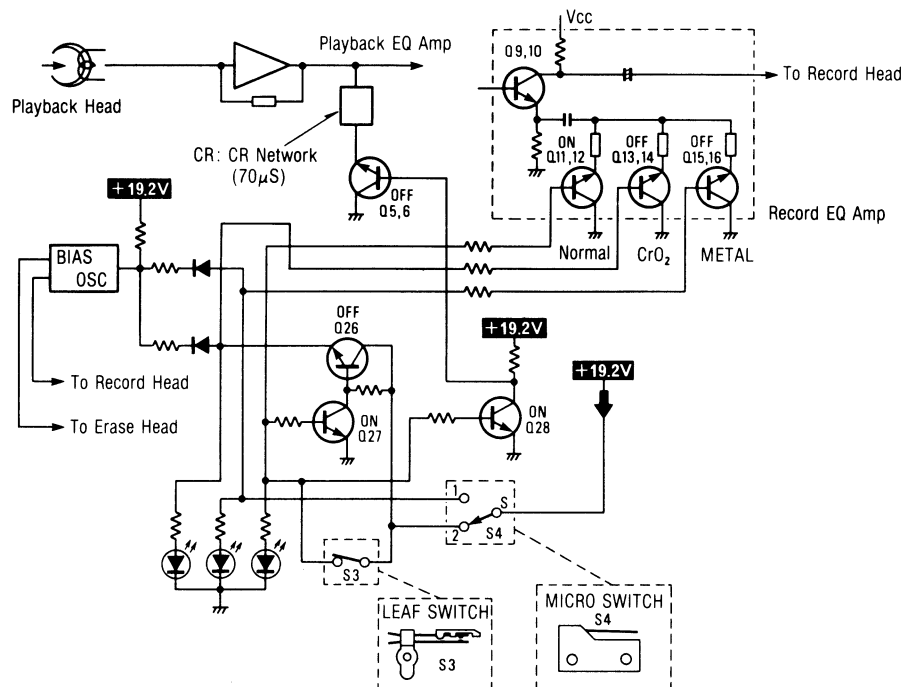
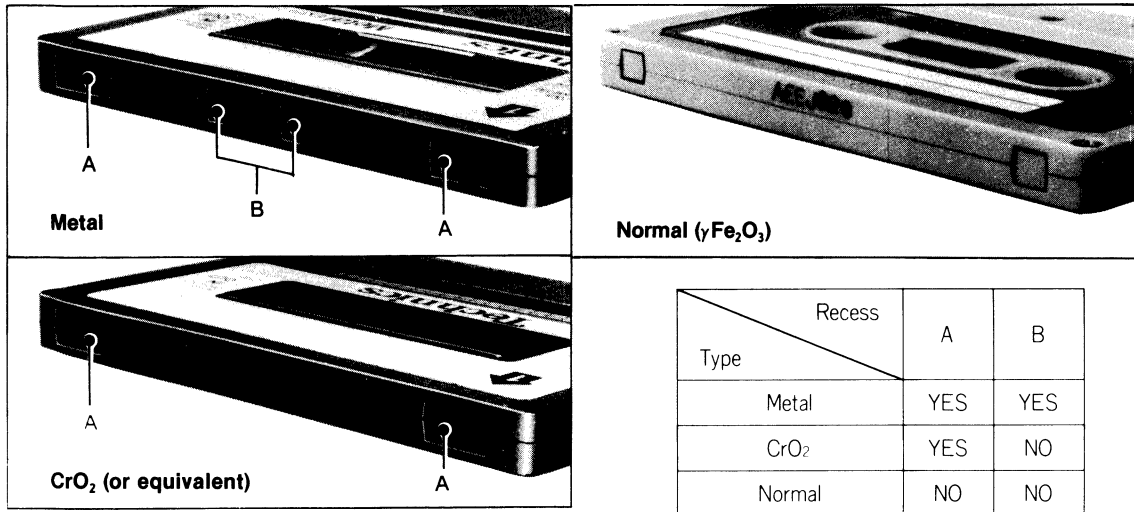


Fig. 6

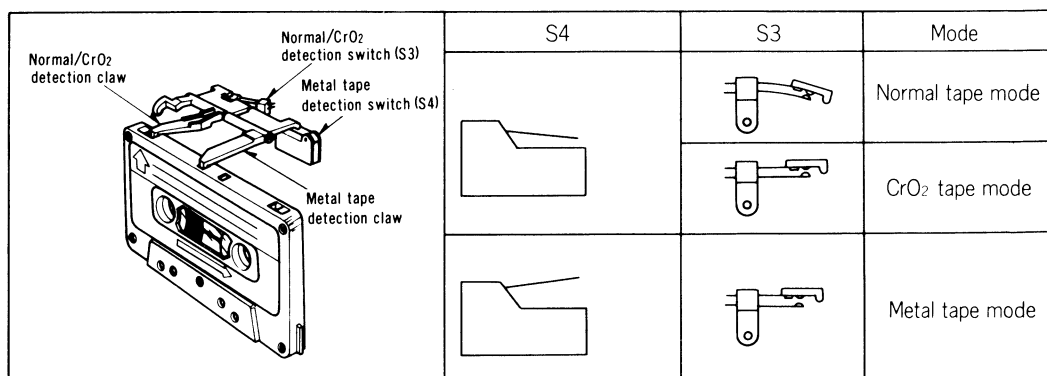
Ref. No.	Procedure	To remove —	Remove —	Shown in fig. —
1	1	Bottom cover	• 5 screws (A)	1
2	1 → 2	Main circuit board and mechanism unit	• Cassette lid (B) • 2 control knobs (C) • 10 screws (D)	2 2 3
3	1 → 2 → 3	Main circuit board	• Screw (E) • Record wire (F) • 3 nuts (G)	3 3 4
4	1 → 2 → 4	Mechanism unit	• 6 screws (H)	4
5	1 → 2 → 4 → 5	Operation button unit	• Cassette holder (I) • 2 screws (J)	4 6
6	1 → 2 → 6	FL meter circuit board	• 4 screws (K)	4, 5

AUTO TAPE SELECTOR FUNCTION

RS-M07 is equipped with an auto-tape selector system that detects these identification recesses and automatically selects the correct bias and equalization for normal, CrO₂ and metal tape varieties. Thus, the novice user can obtain the correct tape selector setting automatically to ensure proper recording and playback results.



AUTO TAPE SELECTOR CIRCUIT (NORMAL TAPE MODE)



MEASUREMENT AND ADJUSTMENT METHODS

NOTE:

Tape speed can be adjusted through the small hole on the back-side of main case by the \ominus screw driver (non metal type) as shown in the diagram below.

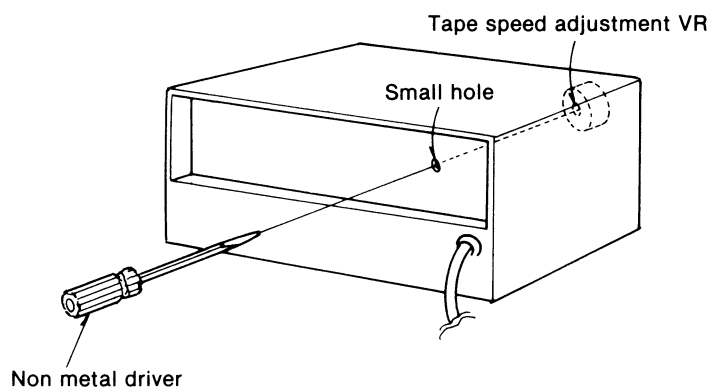


Fig. 1

ADJUSTMENT PARTS LOCATION

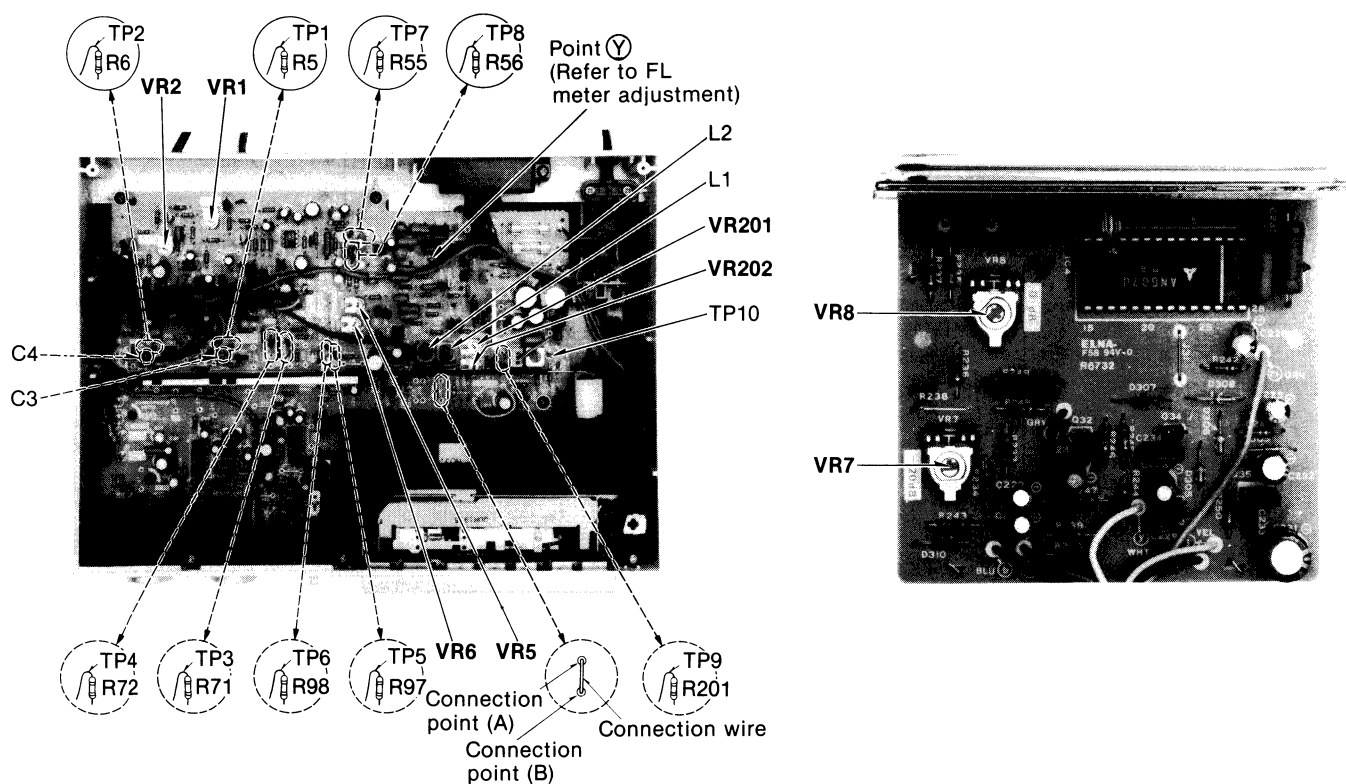
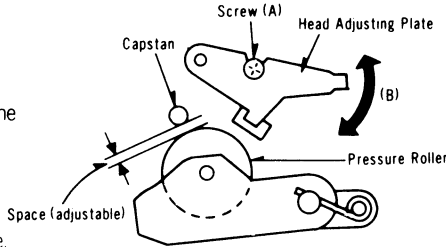
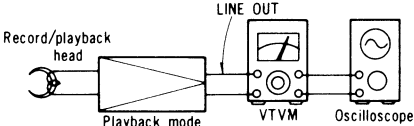
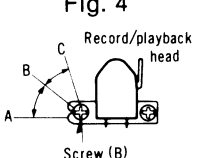
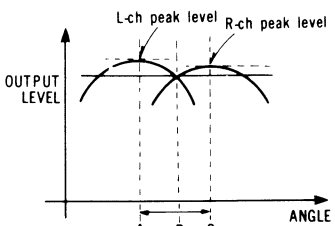
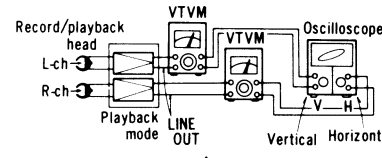
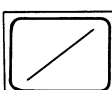
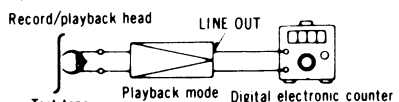
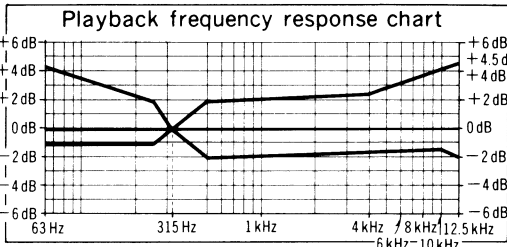
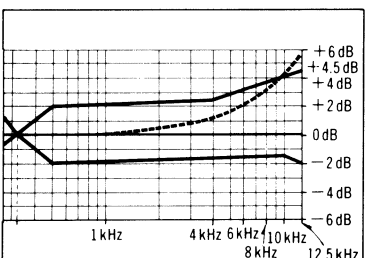
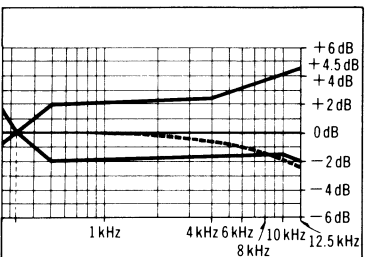


Fig. 2

NOTES: Keep good condition, set switches and controls in the following positions, unless otherwise specified.

- Make sure heads are clean.
- Make sure capstan and pressure roller are clean.
- Judgeable room temperature: $20 \pm 5^{\circ}\text{C}$ ($68 \pm 9^{\circ}\text{F}$)
- Dolby NR switch: OUT
- Input level controls: Maximum

ITEM	MEASUREMENT & ADJUSTMENT
<p>A Head position adjustment</p> <p>Condition:</p> <ul style="list-style-type: none"> • Playback and pause mode 	<p>(The head adjusting plate is provided to adjust the tape touch of the head in cue or review mode.)</p> <ol style="list-style-type: none"> 1 Press the playback button and pause button 2 Measure the space between the pressure roller and the capstan. <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> Standard value: $0.5 \pm 0.3\text{ mm}$ </div> <ol style="list-style-type: none"> 3 If the measured value is not within the standard value, untighten screw (A), and slide the head adjusting plate in the direction of arrow (B) for adjustment  <p style="text-align: center;">Fig. 3</p>
<p>B Head azimuth adjustment</p> <p>Condition:</p> <ul style="list-style-type: none"> • Playback mode • Normal tape mode <p>Equipment:</p> <ul style="list-style-type: none"> • VTVM • Oscilloscope • Test tape (azimuth) ... QZZCFM 	<p>L-ch/R-ch output balance adjustment</p> <ol style="list-style-type: none"> 1 Make connections as shown in fig. 4. 2 Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (B) in fig. 5 for maximum output L-ch and R-ch levels. 3 Turn the screw shown in fig. 5 to find angles A and C (points where peak output levels for left and right channels are obtained). Then, locate the angle B between angles A and C, i.e., a point where L-ch and R-ch output levels come together at maximum. (Refer to figs. 5 and 6.)  <p style="text-align: center;">Fig. 4</p>  <p style="text-align: center;">Fig. 5</p>  <p style="text-align: center;">Fig. 6</p> <p>L-ch/R-ch phase adjustment</p> <ol style="list-style-type: none"> 4 Make connections as shown in fig. 7. 5 Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (B) shown in fig. 5 so that pointers of the two VTVMs swing to maximum and a waveform as illustrated in fig. 8 is obtained on the oscilloscope.  <p style="text-align: center;">Fig. 7</p>  <p style="text-align: center;">Fig. 8</p>
<p>C Tape speed</p> <p>Condition:</p> <ul style="list-style-type: none"> • Playback mode • Normal tape mode <p>Equipment:</p> <ul style="list-style-type: none"> • Digital electronic counter or frequency counter • Test tape ... QZZCWAT 	<p>Tape speed accuracy</p> <ol style="list-style-type: none"> 1 Test equipment connection is shown in fig. 9. 2 Playback test tape (QZZCWAT 3,000Hz), and supply playback signal to frequency counter. 3 Take measurement at middle section of tape. 4 Measure this frequency. 5 On the basis of 3,000Hz, determine value by following formula: $\text{Tape speed accuracy} = \frac{f - 3,000}{3,000} \times 100 (\%) \quad \text{where, } f = \text{measured value}$ <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> Standard value: $\pm 1.5\%$ </div> <p>Adjustment method</p> <ol style="list-style-type: none"> 1 Playback the test tape (middle) 2 Adjust so that frequency becomes 3,000 Hz 3 Tape speed adjustment VR shown in fig. 1.  <p style="text-align: center;">Fig. 9</p>

ITEM	MEASUREMENT & ADJUSTMENT																														
	<p>Tape speed fluctuation</p> <p>Make measurements in same manner as above (beginning, middle and end of tape), and determine the difference between maximum and minimum values and calculate as follows:</p> $\text{Tape speed fluctuation} = \frac{f_1 - f_2}{3,000} \times 100 (\%) \quad f_1 = \text{maximum value, } f_2 = \text{minimum value}$ <div style="border: 1px solid black; padding: 5px; text-align: center;">Standard value: Less than 1%</div> <p>Note:</p> <p>Please use non metal type screwdriver when you adjust tape speed accuracy on this unit.</p>																														
<p>ⓓ Playback frequency response</p> <p>Condition:</p> <ul style="list-style-type: none">• Playback mode• Normal tape mode <p>Equipment:</p> <ul style="list-style-type: none">• VTVM • Oscilloscope• Test tape... QZZCFM	<div><div><div>1. Test equipment connection is shown in fig. 4.</div><div>2. Place UNIT into Normal tape mode.</div><div>3. Playback the frequency response test tape (QZZCFM).</div><div>4. Measure output level at 315 Hz, 12.5 kHz, 8 kHz, 4 kHz, 1 kHz, 250 Hz, 125 Hz and 63 Hz, and compare each output level with the standard frequency 315 Hz, at LINE OUT.</div><div>5. Make measurement for both channels.</div><div>6. Make sure that the measured value is within the range specified in the frequency response chart (shown in fig. 10).</div></div><div></div><div><p style="text-align: center;">Fig. 10</p></div></div> <div><div><div>1. If the measurement value increases in the high frequency range, as shown in fig. 11, remove capacitor C3 (L-CH) and C4 (R-CH) (Refer to fig. 2).</div></div><div><table border="1" style="width: 100%; text-align: center;"><thead><tr><th>6 kHz</th><th>8 kHz</th><th>10 kHz</th><th>12.5 kHz</th></tr></thead><tbody><tr><td>-0.2 dB</td><td>-0.4 dB</td><td>-0.8 dB</td><td>-1.2 dB</td></tr></tbody></table></div><div><p>Compensation value</p></div><div></div><div><p style="text-align: center;">Fig. 11</p></div></div> <div><div><div>2. If the measurement value decreases in the high frequency range, as shown in fig. 12, insert and solder capacitors C3 (L-CH) and C4 (R-CH).</div></div><div><table border="1" style="width: 100%; text-align: center;"><thead><tr><th>6 kHz</th><th>8 kHz</th><th>10 kHz</th><th>12.5 kHz</th></tr></thead><tbody><tr><td>+0.2 dB</td><td>+0.4 dB</td><td>+0.8 dB</td><td>+1.2 dB</td></tr></tbody></table></div><div><p>Compensation value</p></div><div><table border="1" style="width: 100%; text-align: center;"><thead><tr><th>6 kHz</th><th>8 kHz</th><th>10 kHz</th><th>12.5 kHz</th></tr></thead><tbody><tr><td>+0.2 dB</td><td>+0.4 dB</td><td>+0.8 dB</td><td>+1.2 dB</td></tr></tbody></table></div><div><p>Capacitors</p></div><div><table border="1" style="width: 100%; text-align: center;"><thead><tr><th>Ref. No.</th><th>Part No.</th></tr></thead><tbody><tr><td>C3, C4</td><td>ECKD1H271KB</td></tr></tbody></table></div><div></div><div><p style="text-align: center;">Fig. 12</p></div></div> <tr><td><p>ⓔ Playback gain</p><p>Condition:</p><ul style="list-style-type: none">• Playback mode• Normal tape mode<p>Equipment:</p><ul style="list-style-type: none">• VTVM • Oscilloscope• Test tape... QZZCFM</td><td><div><div><div>1. Test equipment connection is shown in fig. 4.</div><div>2. Playback standard recording level portion on test tape (QZZCFM 315 Hz), and using VTVM measure the output level at LINE OUT.</div><div>3. Make measurement for both channels.</div></div><div><div style="border: 1px solid black; padding: 5px; text-align: center;">Standard value: 0.4V ± 2 dB [around 0.42V: at test points TP5 (L-CH) and TP6 (R-CH)]</div></div><div><p>Adjustment</p><div><div>1. If measured value is not within standard, adjust VR1 (L-CH), VR2 (R-CH) (See fig. 2 on page 4).</div><div>2. After adjustment, check "Playback frequency response" again.</div></div></div></div></td></tr>	6 kHz	8 kHz	10 kHz	12.5 kHz	-0.2 dB	-0.4 dB	-0.8 dB	-1.2 dB	6 kHz	8 kHz	10 kHz	12.5 kHz	+0.2 dB	+0.4 dB	+0.8 dB	+1.2 dB	6 kHz	8 kHz	10 kHz	12.5 kHz	+0.2 dB	+0.4 dB	+0.8 dB	+1.2 dB	Ref. No.	Part No.	C3, C4	ECKD1H271KB	<p>ⓔ Playback gain</p> <p>Condition:</p> <ul style="list-style-type: none">• Playback mode• Normal tape mode <p>Equipment:</p> <ul style="list-style-type: none">• VTVM • Oscilloscope• Test tape... QZZCFM	<div><div><div>1. Test equipment connection is shown in fig. 4.</div><div>2. Playback standard recording level portion on test tape (QZZCFM 315 Hz), and using VTVM measure the output level at LINE OUT.</div><div>3. Make measurement for both channels.</div></div><div><div style="border: 1px solid black; padding: 5px; text-align: center;">Standard value: 0.4V ± 2 dB [around 0.42V: at test points TP5 (L-CH) and TP6 (R-CH)]</div></div><div><p>Adjustment</p><div><div>1. If measured value is not within standard, adjust VR1 (L-CH), VR2 (R-CH) (See fig. 2 on page 4).</div><div>2. After adjustment, check "Playback frequency response" again.</div></div></div></div>
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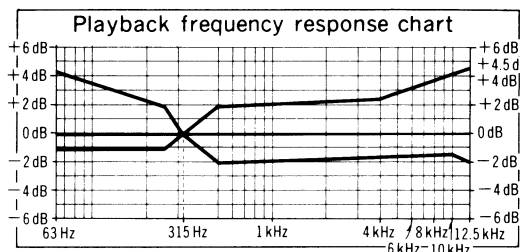


Fig. 10

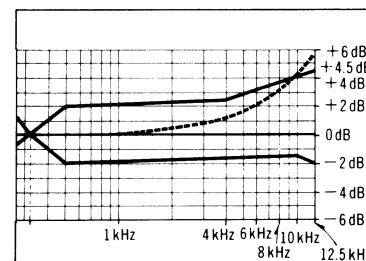


Fig. 11

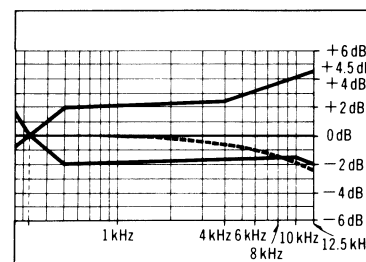
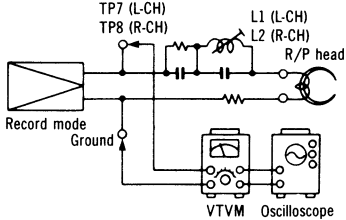
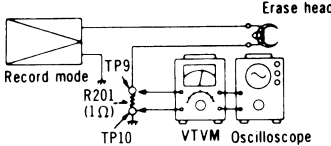
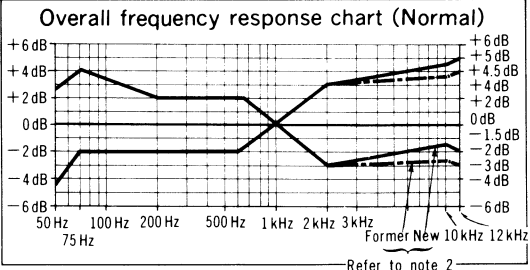
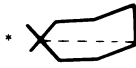
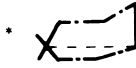
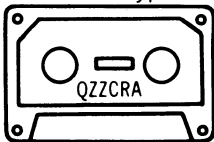
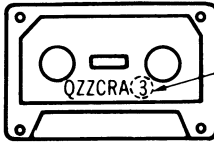
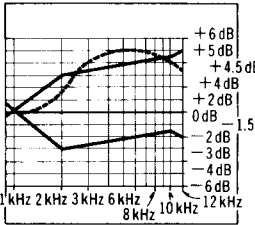
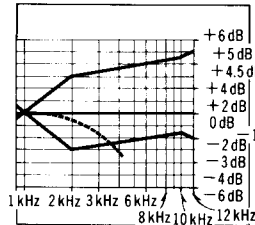
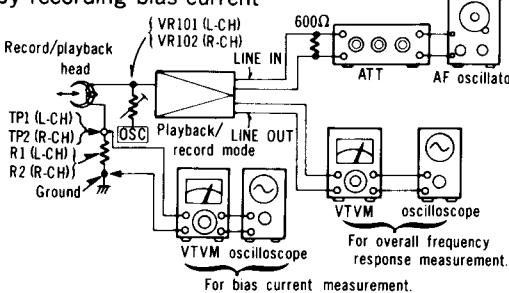
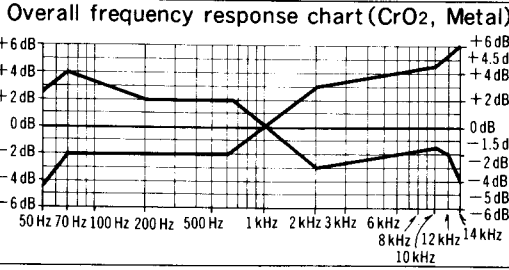
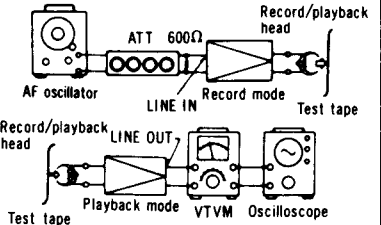
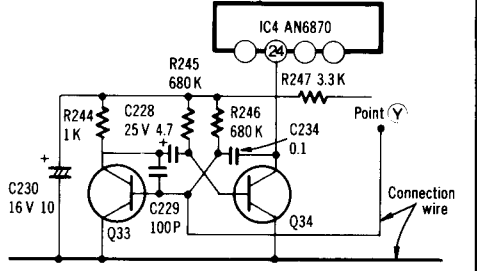
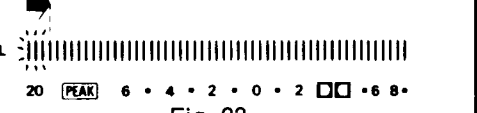
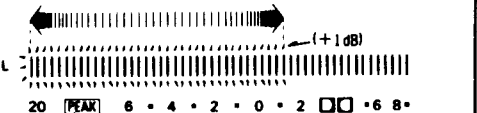
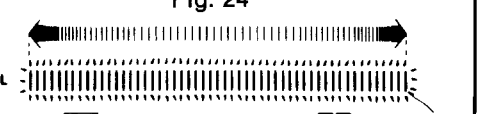
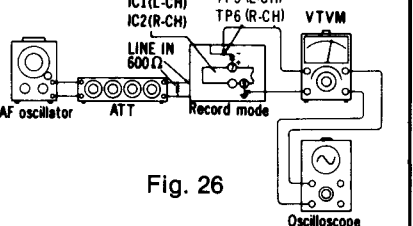


Fig. 12

ITEM	MEASUREMENT & ADJUSTMENT
<p>㊦ Bias leakage</p> <p>Condition:</p> <ul style="list-style-type: none"> • Record mode • Metal tape mode <p>Equipment:</p> <ul style="list-style-type: none"> • VTVM • Oscilloscope 	<ol style="list-style-type: none"> 1. Test equipment connection is shown in fig. 13. 2. Place UNIT into record mode. 3. Adjust trap coil L1 (L-CH), L2 (R-CH) so that measured value on VTVM becomes minimum. 4. Take adjustment for both channels.  <p style="text-align: center;">Fig. 13</p>
<p>㊦ Erase current</p> <p>Condition:</p> <ul style="list-style-type: none"> • Record mode • Metal tape mode <p>Equipment:</p> <ul style="list-style-type: none"> • VTVM • Oscilloscope 	<ol style="list-style-type: none"> 1. Test equipment connection is shown in fig. 14. 2. Place UNIT into Metal tape mode. 3. Press the record and pause buttons. 4. Read voltage on VTVM and calculate erase current by following formula: $\text{Erase current (A)} = \frac{\text{Voltage across both ends of R201}}{1 (\Omega)}$  <p style="text-align: center;">Fig. 14</p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p>Standard value: 155 ± 15mA (Metal position)</p> </div> <ol style="list-style-type: none"> 5. If measured value is not within standard, adjust as follows. <p>Adjustment</p> <ol style="list-style-type: none"> 1. Open the point (A) and short the point (B) on the main circuit board in the adjustment parts location (See fig. 2). 2. Make measurement for erase current 3. Make sure that the measured value is within the erase current of 140mA to 170mA. 4. If it is beyond the value, carry out the following adjustments: <ul style="list-style-type: none"> • If the erase current is less than 140mA, short the point (A) and (B). • If the erase current is more than 170mA, open the points (A) and (B)
<p>㊦ Overall frequency response</p> <p>Condition:</p> <ul style="list-style-type: none"> • Record/playback mode • Normal tape mode • CrO₂ tape mode • Metal tape mode <p>• Input level controls ...MAX</p> <p>Equipment:</p> <ul style="list-style-type: none"> • VTVM • AF oscillator • ATT • Oscilloscope • Resistor (600Ω) • Test tape (reference blank tape) <ul style="list-style-type: none"> ... QZZCRA for Normal ... QZZCRX for CrO₂ ... QZZCRZ for Metal 	<p>Note 1:</p> <p>Before measuring and adjusting, make sure of the playback frequency response (For the method of measurement, please refer to the playback frequency response).</p> <p>Note 2:</p> <p>Test tape QZZCRA to be supplied after July 1980 has higher recording sensitivity in the middle and high frequency range.</p>  <p style="text-align: center;">Fig. 15</p> <ul style="list-style-type: none"> •  This chart indicates the standard values for the new type of QZZCRA when in use. •  This chart indicates the standard values for the former type of QZZCRA when in use. <p>The new type of QZZCRA is marked as shown in fig. 16.</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center;"> <p>Former type</p>  </div> <div style="margin: 0 20px;">➔</div> <div style="text-align: center;"> <p>New type</p>  <p>Marking</p> </div> </div> <p style="text-align: center;">Fig. 16</p>

ITEM	MEASUREMENT & ADJUSTMENT
	<p>Overall frequency response adjustment by recording bias current (Recording equalizer is fixed.)</p> <ol style="list-style-type: none"> 1. Make connections as shown in fig. 17. 2. Place the UNIT into Normal tape mode and load the test tape (QZZCRA). 3. Input a 1 kHz, -24 dB signal through LINE IN. Place the set in record mode. 4. Fine adjust the attenuator to obtain 0.4 V LINE OUT output. <ul style="list-style-type: none"> • Make sure that the input signal level is -24 ± 4 dB with 0.4 V output voltage. 5. Adjust the attenuator to reduce the input signal level by 20 dB. 6. Adjust the AF oscillator to generate 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 4 kHz, 8 kHz, 10 kHz and 12 kHz signals, and record these signals on the test tape. 7. Playback the signals recorded in step 6, and check if the frequency response curve is within the limits shown in the overall frequency response chart for normal tapes (fig. 15). (If the curve is within the charted specifications, proceed to steps 8, 9 and 10.) If the curve is not within the charted specifications, adjust as follows: <div style="display: flex; justify-content: space-around;"> <div style="width: 45%;"> <p>Adjustment (A): When the curve exceeds the overall frequency response chart specifications (fig. 15) as shown in fig. 18.</p>  <p>Fig. 18</p> <ol style="list-style-type: none"> 1) Increase bias current by turning VR201 (L-CH) and VR202 (R-CH). (See fig. 2 on page 4.) 2) Repeat steps 6 and 7 to confirm. (Proceed to steps 8, 9 and 10 if the curve is now within the charted specifications in fig. 15.) 3) If the curve still exceeds the specifications (fig. 15), increase bias current further and repeat steps 6 and 7. </div> <div style="width: 45%;"> <p>Adjustment (B): When the curve falls below the overall frequency response chart specifications (fig. 15) as shown in fig. 19.</p>  <p>Fig. 19</p> <ol style="list-style-type: none"> 1) Reduce bias current by turning VR201 (L-CH) and VR202 (R-CH). 2) Repeat steps 6 and 7 to confirm. (Proceed to steps 8, 9 and 10 if the curve is now within the charted specifications in fig. 15.) 3) If the curve still falls below the charted specifications (fig. 15) reduce bias current further and repeat steps 6 and 7. </div> </div> <div style="text-align: center;">  <p>Fig. 17</p> </div> <div style="text-align: center;">  <p>Fig. 20</p> </div> <ol style="list-style-type: none"> 8. Place the UNIT into CrO₂ tape mode change test tape to QZZCRX, and record 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 4 kHz, 8 kHz, 10 kHz, 14 kHz and 12.5 kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for CrO₂ tapes (fig. 20). 9. Place the UNIT into Metal tape mode change test tape to QZZCRZ, and record 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 4 kHz, 8 kHz, 10 kHz, 12 kHz and 14 kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for metal tapes (fig. 20).

ITEM	MEASUREMENT & ADJUSTMENT
	<ol style="list-style-type: none"> 10. Confirm that bias currents are approximately as follows when the UNIT is set at different tape mode. <ul style="list-style-type: none"> • Read voltage on VTVM and calculate bias current by following formula: Bias current (A) = $\frac{\text{Value read on VTVM (V)}}{10 (\Omega)}$ <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>around 400 μA (Normal position) around 600 μA (CrO₂ position) around 1000 μA (Metal position)</p> </div> <p style="text-align: right;">} : measured at TP1 (L-CH) and TP2 (R-CH)</p>
<p>Overall gain</p> <p>Condition:</p> <ul style="list-style-type: none"> • Record/playback mode • Input level controls ... MAX • Standard input level; MIC -72 ± 3.5 dB LINE IN ... -24 ± 3.5 dB • Normal tape mode <p>Equipment:</p> <ul style="list-style-type: none"> • VTVM • AF oscillator • ATT • Oscilloscope • Resistor (600 Ω) • Test tape (reference blank tape) ... QZZCRA for Normal 	<ol style="list-style-type: none"> 1. Test equipment connection is shown in fig. 21. 2. Place the UNIT into Normal tape mode and load the test tape (QZZCRA). 3. Place UNIT into record mode. 4. Supply 1 kHz signal (-24 dB) from AF oscillator, through ATT to LINE IN. 5. Adjust ATT until monitor level at LINE OUT becomes 0.4 V. 6. Playback recorded tape, and make sure the value at LINE OUT on VTVM becomes 0.4 V. 7. If measured value is not 0.4 V, adjust VR5 (L-CH), VR6 (R-CH) (See fig. 2 on page 4). 8. Repeat from step (2).  <p>Fig. 21</p>
<p>Fluorescent meter</p> <p>Condition:</p> <ul style="list-style-type: none"> • Record mode • Input level controls ... MAX • Output level control ... MAX • Tape selector ... Normal position <p>Equipment:</p> <ul style="list-style-type: none"> • VTVM • AF oscillator • ATT • Oscilloscope • Resistor (600 Ω) 	<ol style="list-style-type: none"> 1. Test equipment connection is shown in fig. 21. 2. As shown in fig. 22, connecting the base of Q33 and ground stops the oscillation of the astable multivibrator comprising Q33 and Q34. 3. Supply 1 kHz signal (-24 dB) to the LINE IN jack, then press the record button. 4. Adjust the ATT so that the output level at LINE OUT jack becomes 0.4 V (The input level at this condition is termed the standard input level). 5. Adjustment at "-20 dB": <ol style="list-style-type: none"> A. Adjust the ATT so that input level is -20 dB below standard recording level. B. Adjust VR7 so that the -20 dB segment lights up in the -20 ± 0.8 dB range (L-CH ONLY) (See fig. 23). 6. Adjustment at "0 dB": <ol style="list-style-type: none"> A. Adjust the ATT so that the output level at LINE OUT jack becomes 0.4 V. (The input level at this condition is termed the standard input level.) B. Adjust VR8 so that the $+1$ dB segment lights up in the 0 ± 0.2 dB range of the standard input level (See fig. 24). 7. Repeat twice between steps 5 and 6 above. 8. Adjust ATT and check that all segments light up when an input signal level is increased to 10 dB higher than the standard input level (See fig. 25).  <p>Fig. 22</p>  <p>Fig. 23</p>  <p>Fig. 24</p>  <p>Fig. 25</p>
<p>Dolby NR circuit</p> <p>Condition:</p> <ul style="list-style-type: none"> • Record mode • Dolby NR switch ... IN/OUT • Input level controls ... MAX <p>Equipment:</p> <ul style="list-style-type: none"> • VTVM • AF oscillator • ATT • Oscilloscope • Resistor (600 Ω) 	<ol style="list-style-type: none"> 1. Test equipment connection is shown in fig. 26. 2. Place UNIT into record mode, set the Dolby NR switch to OUT position and supply to LINE IN to obtain -34.5 dB at TP5 (L-CH), TP6 (R-CH) (frequency 5 kHz). 3. Confirm that the value at IN position is $8 (\pm 2.5)$ dB greater than the value at OUT position of Dolby NR switch.  <p>Fig. 26</p>

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description
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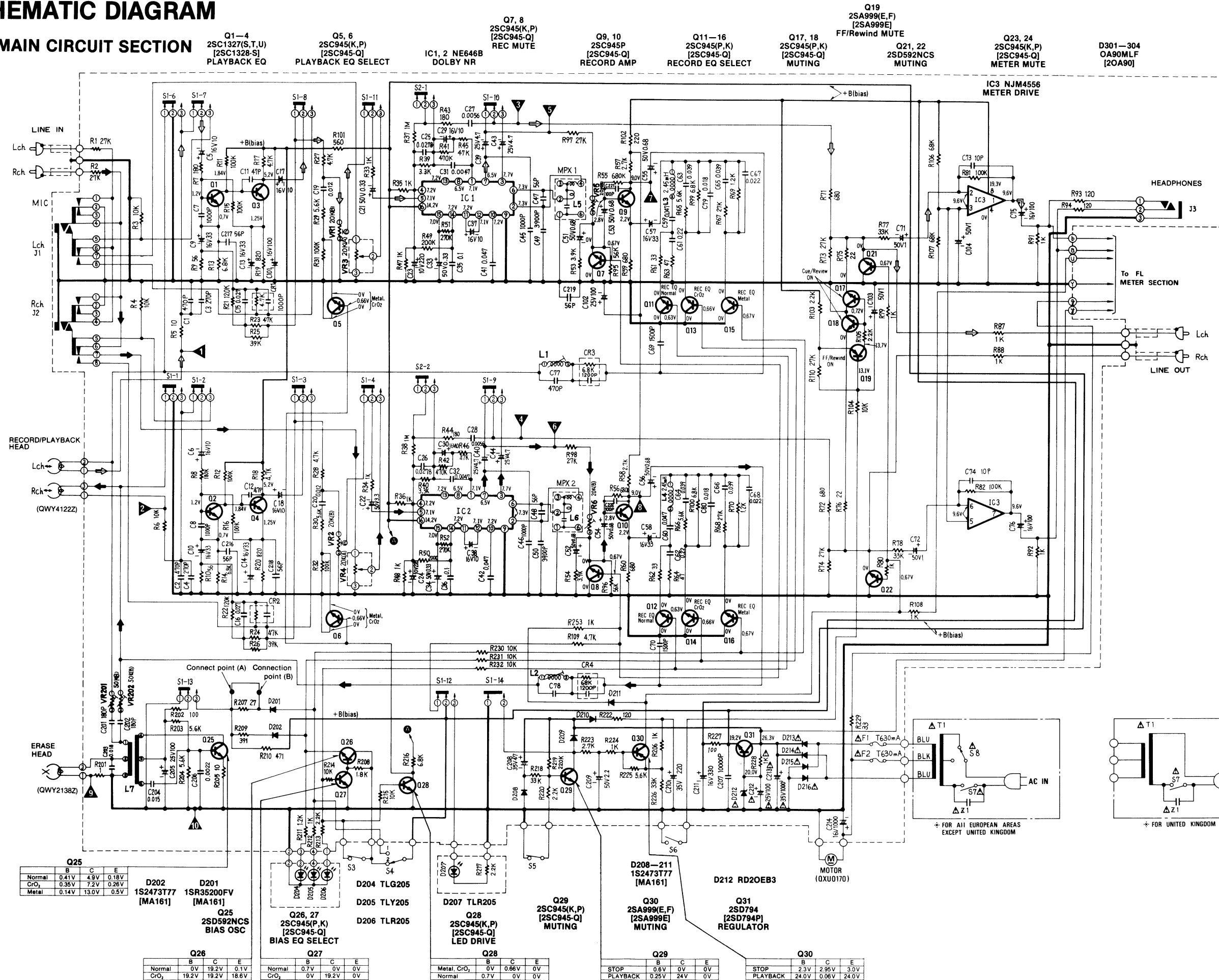
ELECTRICAL PARTS LOCATION

REPLACEMENT PARTS LIST

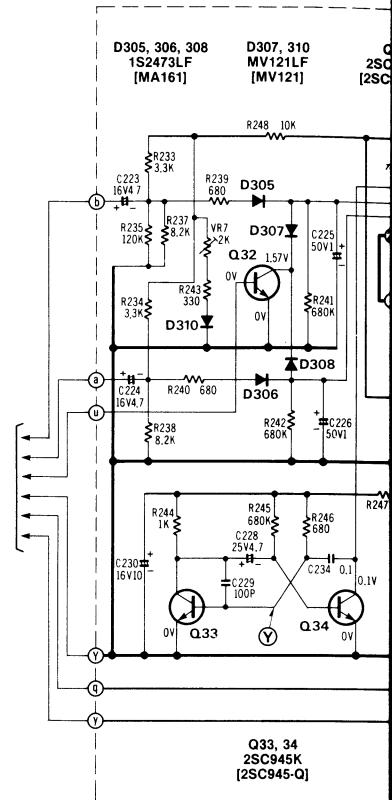
Important safety notice
Components identified by Δ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Ref. No.	Part No.	Part Name & Description
ELECTRICAL PARTS		
E1	QWY4122Z	Record/Playback Head
E2	QWY2138Z	Erase Head
E3	QMLM0041	Recording Lever
E4	QBSM0007	Recording Wire
E5	QJP1921TN	3 Pin Post
E6	QJS1921TN	3 Pin Socket
E7	QJT1054	Contact
E8	QTHM0011	Heat Sink
E9	QTSM0044	Shield Plate-A
E10	QTSM0045	Shield Plate-B
E11	QJT0053	Check Pin
E12	QSI1FL001F	FL Meter
E13	XNS8	Nut (for Input VR)
E14	QNQ1070	Jack Nut
E16	QFC2135	Pin Cord
E17	QBJ1425	Cord Bushing
E18	QTD1295	"
E19	Δ SJA88	AC Power Cord
*For all European areas except United Kingdom.		
E20	Δ QFC1205M	"
*For United Kingdom.		
E21	QKJM0046	Switch Button Rod (for Power Button)
E22	QMAM0123	Switch Angle (for S7)
E23	QMF00016	Transformer Holding Plate
E24	QTD1164	Cord Clamping Lug Terminal
E25	QTD1001	Lug Terminal
E26	XTN3+8B	Tapping Screw $\pm 3 \times 8$
E27	XSN3+6S	Screw $\pm 3 \times 6$
E28	XWA3B	Washer 3 ϕ
E29	XWG3	"
E30	XTN3+10B	Tapping Screw $\pm 3 \times 10$
E31	XTN3+16B	Screw $\pm 3 \times 16$
E32	QTD1017	4 Pin Terminal
E33	Δ QTWM0026	Switch Cover
*For all European areas except United Kingdom.		
E34	Δ QMAM0139	Switch Angle (for S8)
*For all European areas except United Kingdom.		
E35	Δ XTBN3+8BFN	Screw $\pm 3 \times 8$ (for S8)
*For all European areas except United Kingdom.		
E36	QTF1054	Fuse Holder
E37	QTSM0032	Terminal Cover
E38	QTSM0055	Shield Plate
E39	XTB3+12BFN	Screw $\pm 3 \times 12$
	QZE0003	Porcelain Tube

MAIN CIRCUIT SECTION



To MAIN
CIRCUIT
SECTION



Q33, 34
2SC945K
[2SC945-Q]

* FOR ALL EUROPEAN AREA
EXCEPT UNITED KINGDOM

✱ FOR UNITED KINGDOM

To MAIN
CIRCUIT
SECTION

Playback S/N ratio * Test tape...QZZCFM	More than 45dB (without NAB filter)
Overall distortion * Test tape ...QZZCRA for Normal ...QZZCRX for CrO ₂ ...QZZCRZ for Metal	Less than 3 % (Normal) Less than 3.5 % (CrO ₂ , Metal)
Overall S/N ratio * Test tape...QZZCRX	More than 46dB (without NAB filter)

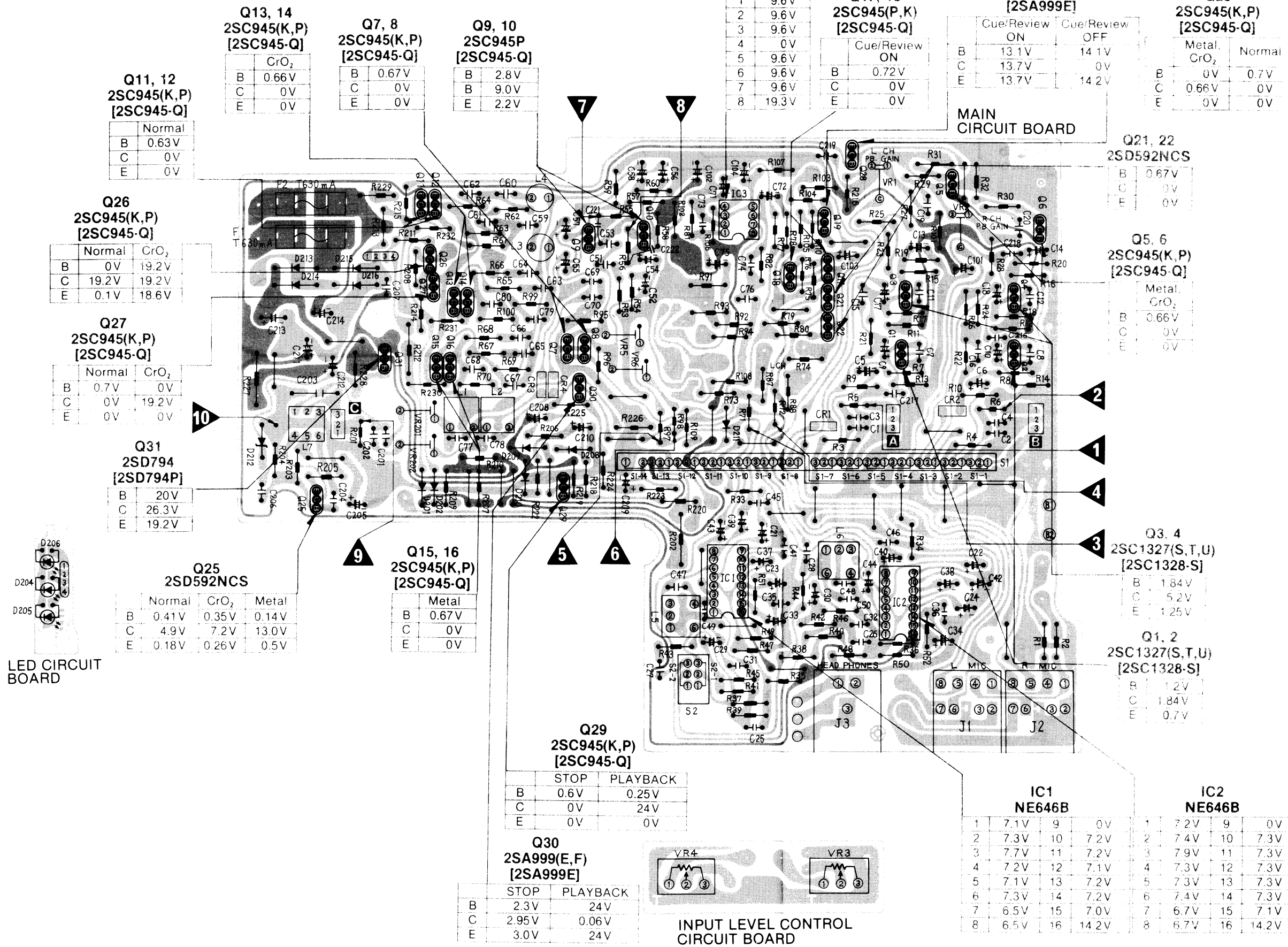
e.g. **25C1327(S,T,U)**
 [25C1328-S]

• The supply parts number is described alone in the replacement parts list.

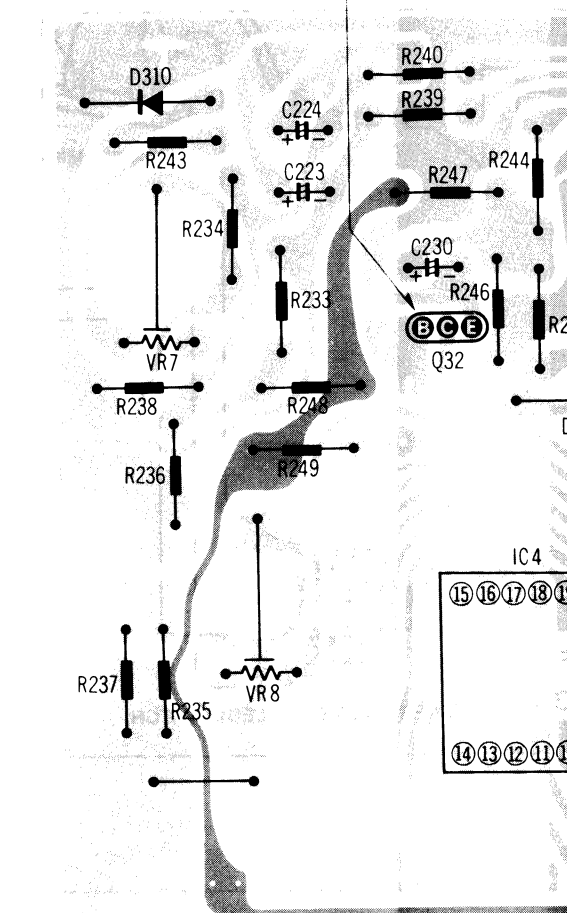
Ref. No.	Part No.	Part Name & Description
<u>TRANSFORMER</u>		
T1	QALPDS55KE	Power Transformer
	*For all European areas except United Kingdom.	
	QALPDS6KE	"
	*For United Kingdom.	
<u>COILS</u>		
L1, 2	QLQX1032W	Bias Trap Coil
L3, 4	QLQX2421Y	Peaking Coil
L5, 6	SLM1219	PLM1 Filter
L7	QLB0198K	Bias Oscillation Coil
<u>SWITCHES</u>		
S1	QSSE203	Slide Switch (Record/Playback Selector)
S2	QSW2232	Push Switch (Auto Tape Selector)
S3	QSB0253M	Leaf Switch (Auto Tape Selector)
S4	AH32229	Micro Switch (Auto Tape Selector)
S5	QSB0251i	Leaf Switch (Rec-Mute ON/OFF)
S6	QSB0251i	Leaf Switch (Fast Forward/Rewind Muting)
S7	QSW1117AS	Push Switch (Power ON/OFF)
S8	QSR1409H	AC Power Voltage Select Switch
	*For all European areas except United Kingdom.	
<u>FUSES</u>		
F1, 2	QXAQ0008	Fuse (T630mA)
<u>JACKS</u>		
J1, 2	QJA0253	Microphone Jack
J3	QJA0249	Headphones Jack

CIRCUIT BOARDS

MAIN CIRCUIT BOARD



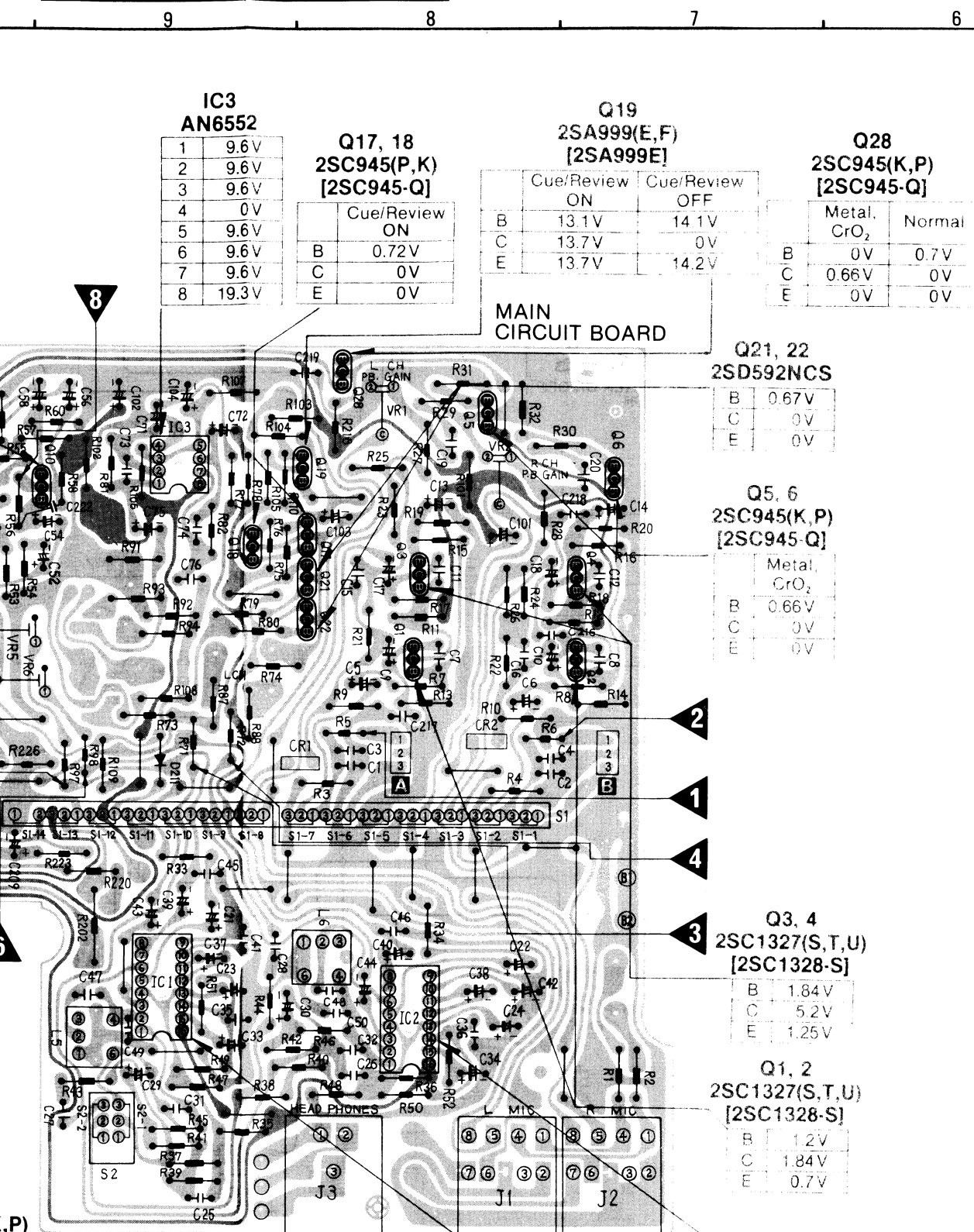
FL METER CIRCUIT BOARD



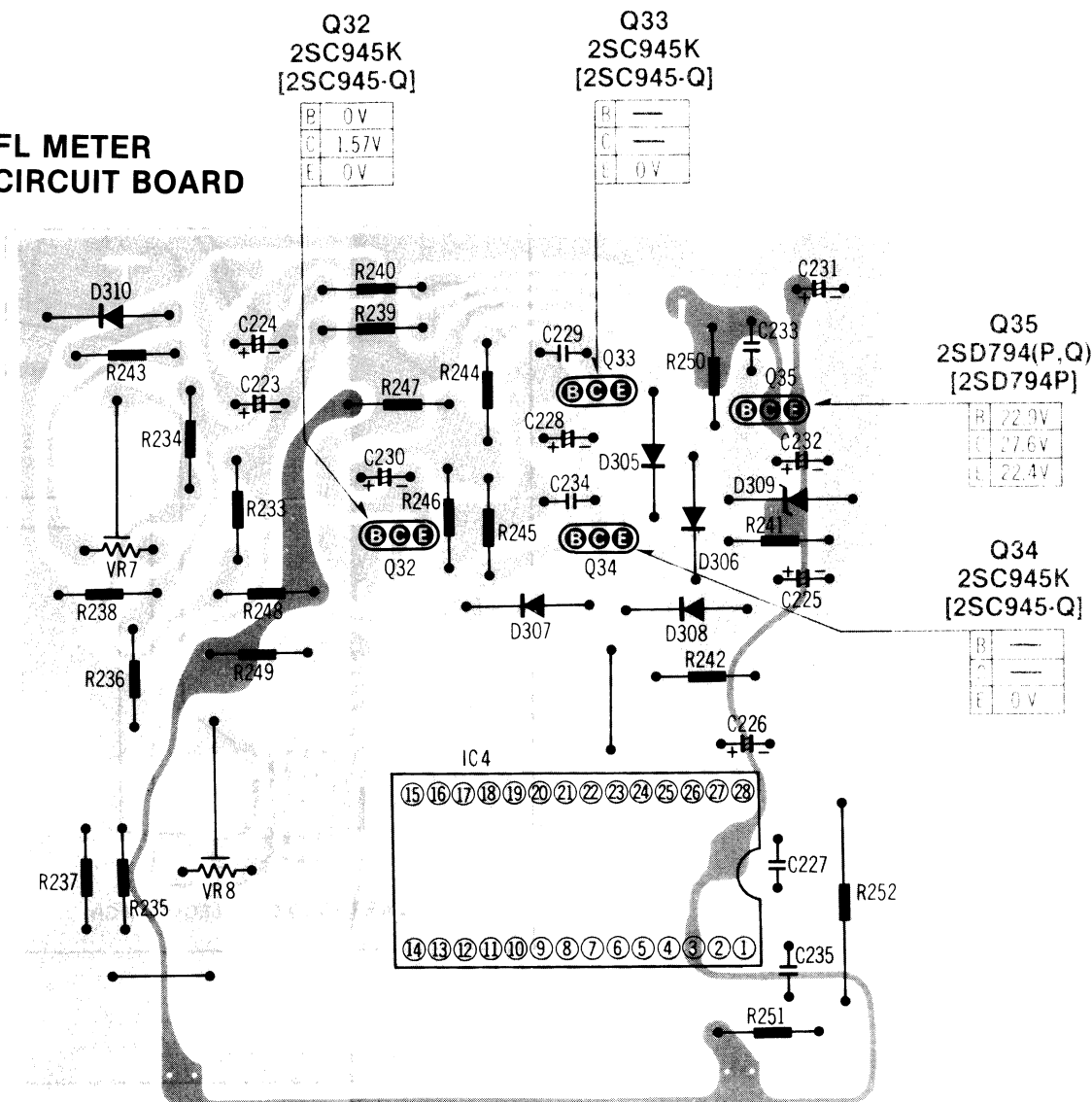
NOTES:

- The circuit show
- The circuit show
- the back side of
- Values indicated
- electrical parts.
- All voltage value
- Unless otherwise
- tape mode at NC
- Normal
- Cue/review OFF.
- Stop
- Playback
- For measurment, u
- Described in the
- supply parts num
- One type of num
- parts number wh

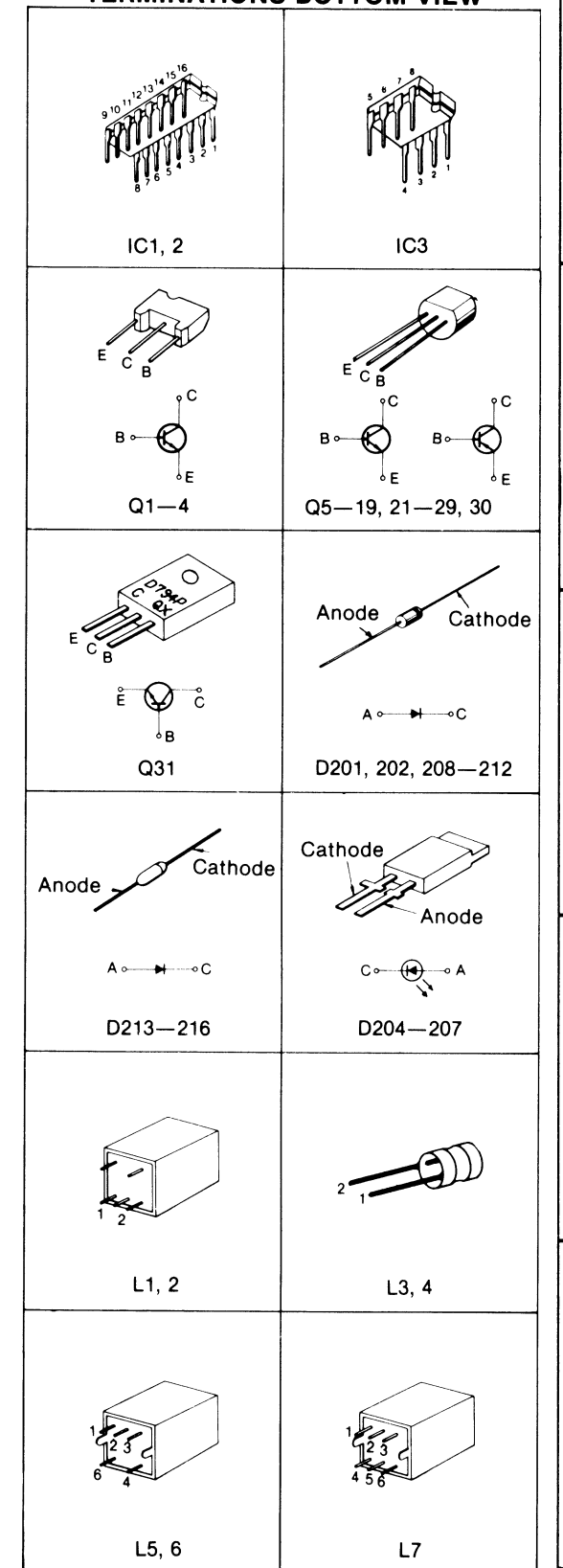
• The supply parts






FL METER CIRCUIT BOARD



TERMINATIONS BOTTOM VIEW



NOTES:

- The circuit shown in  on the conductor is + B (bias) circuit.
- The circuit shown in  on the conductor indicates printed circuit on the back side of the printed circuit board.
- Values indicated in  are DC voltage between the ground and electrical parts.
- All voltage values shown in circuitry are under no signal condition. Unless otherwise specified, voltage measurement conditions are that tape travel is at STOP, tape mode at NORMAL, and Dolby NR switch at OFF.
- Normal Voltage at normal tape mode
- Cue/review OFF Voltage at modes other than cue/review
- Stop Voltage at stop mode
- Playback Voltage at playback mode
- For measurement, use VTVM.
- Described in the circuit board diagram are two types of numbers; the supply parts number and production parts number for transistors. One type of number is used for supply parts number and production parts number when they are identical.

Production parts number

Supply parts number

e.g. 2SC1327(S,T,U) [2SC1328-S]

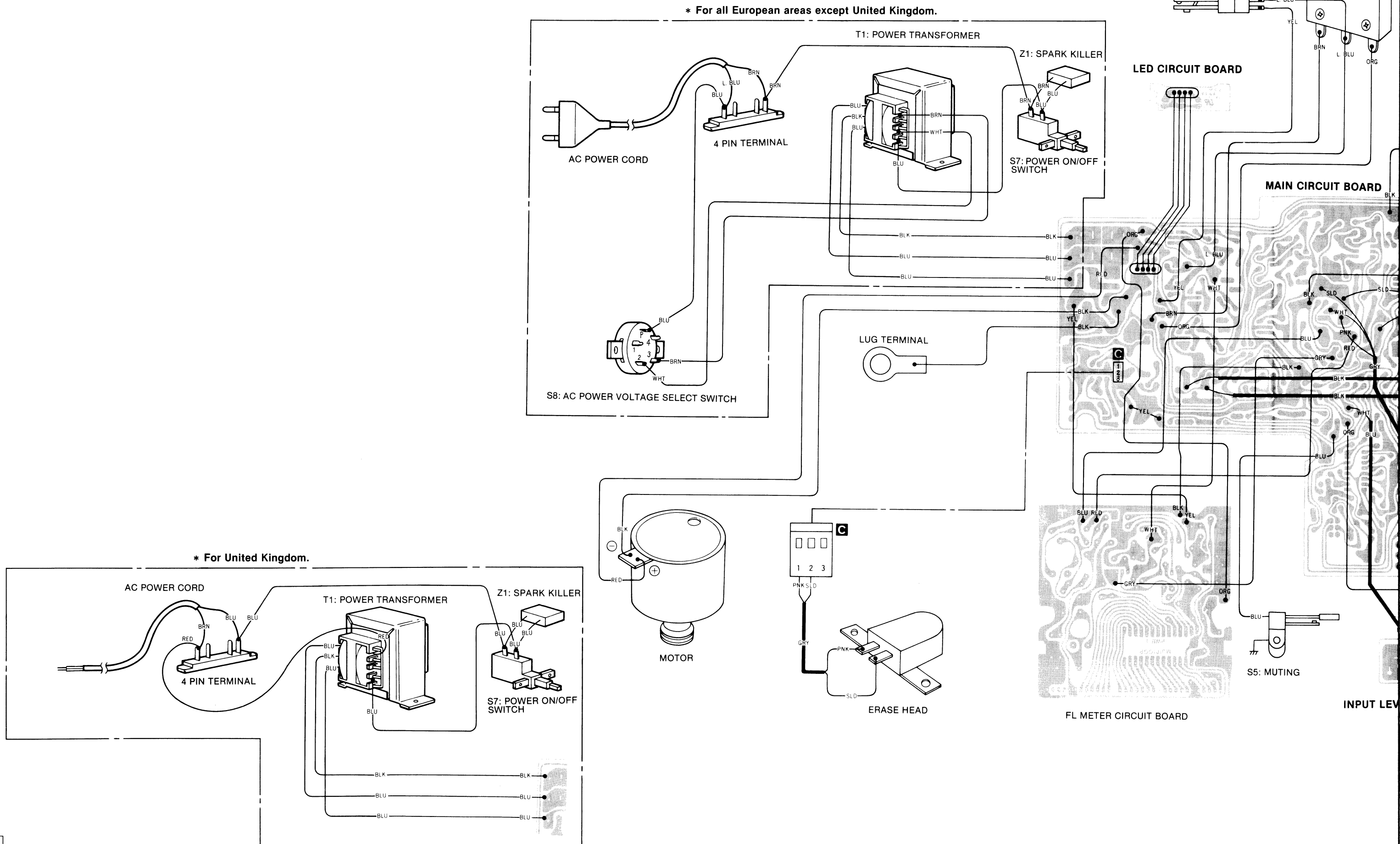
Production parts number

Supply parts number

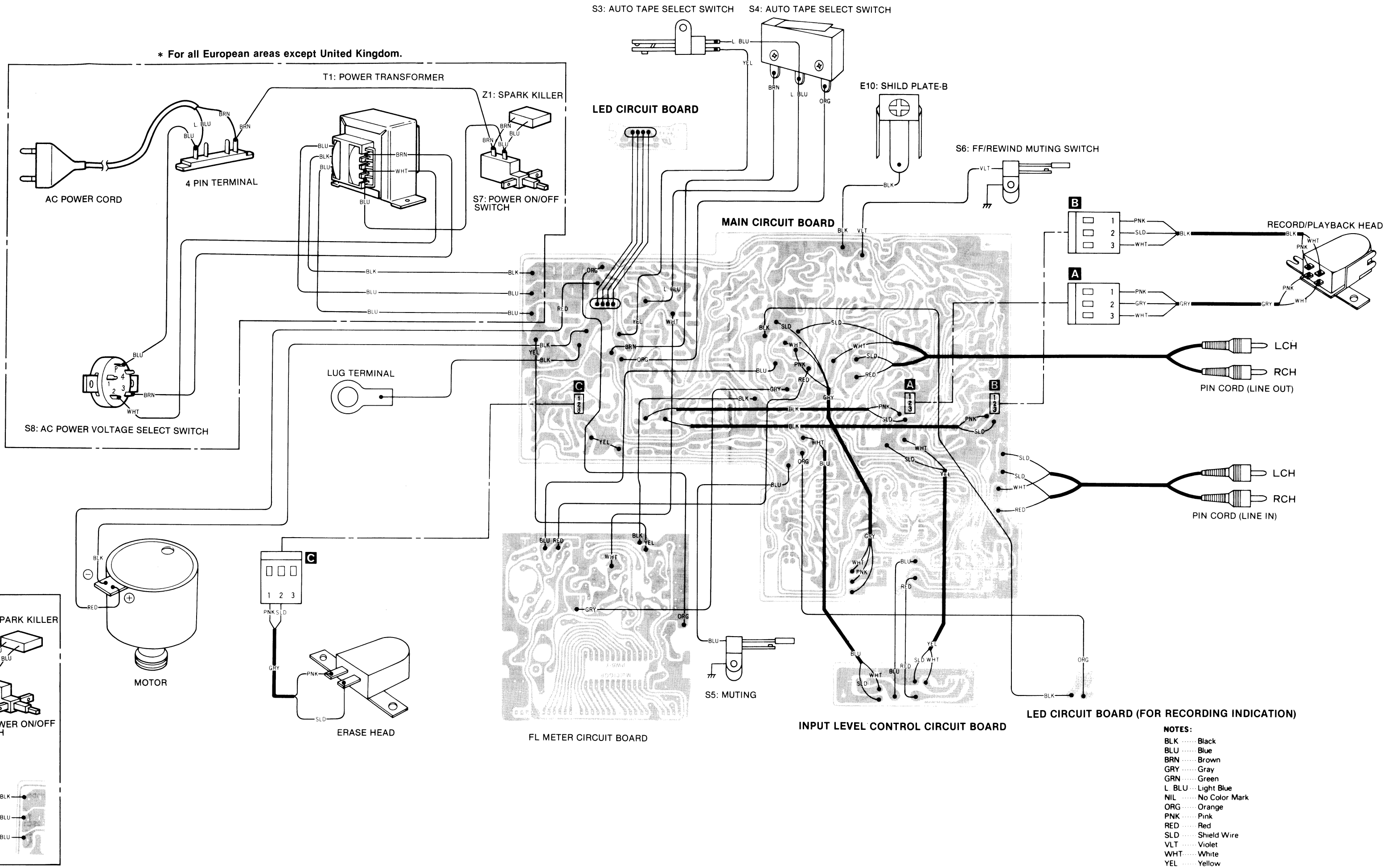
OA90MLF (20A90)

The supply parts number is described alone in the replacement parts list.

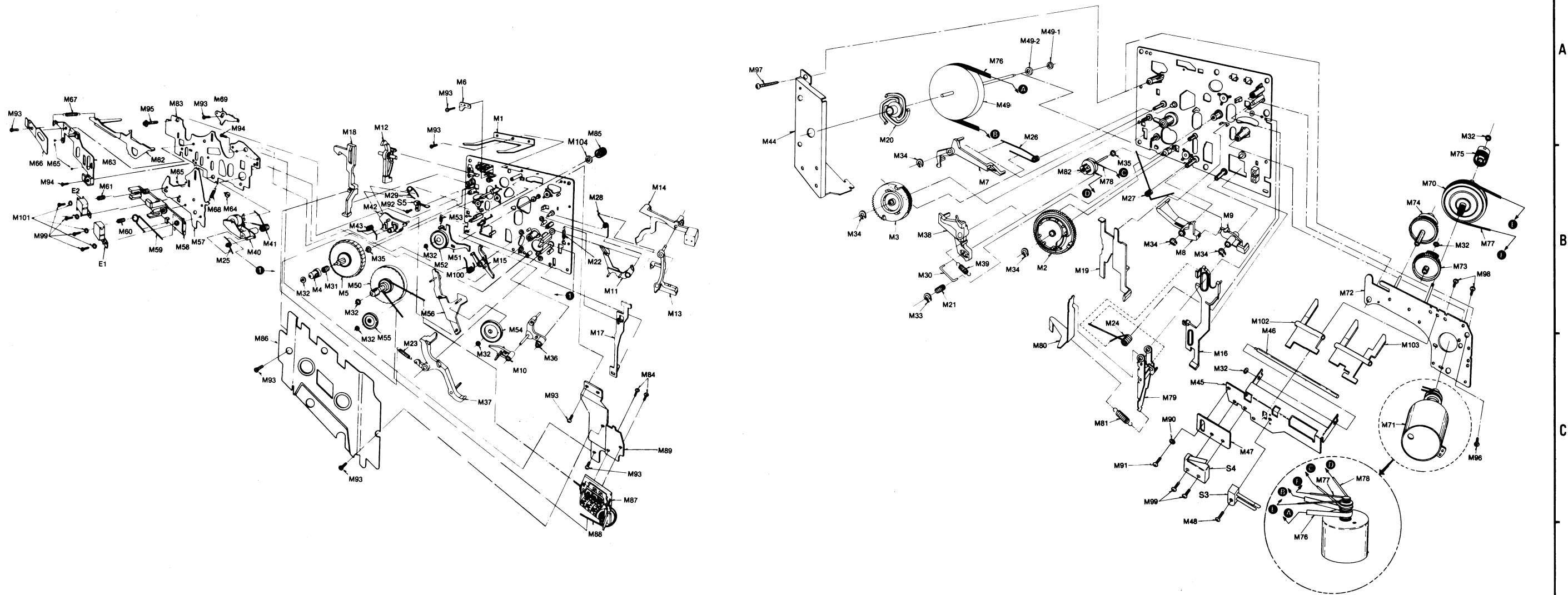
WIRING CONNECTION DIAGRAM



* For all European areas except United Kingdom.



MECHANISM PARTS LOCATION



REPLACEMENT PARTS LIST

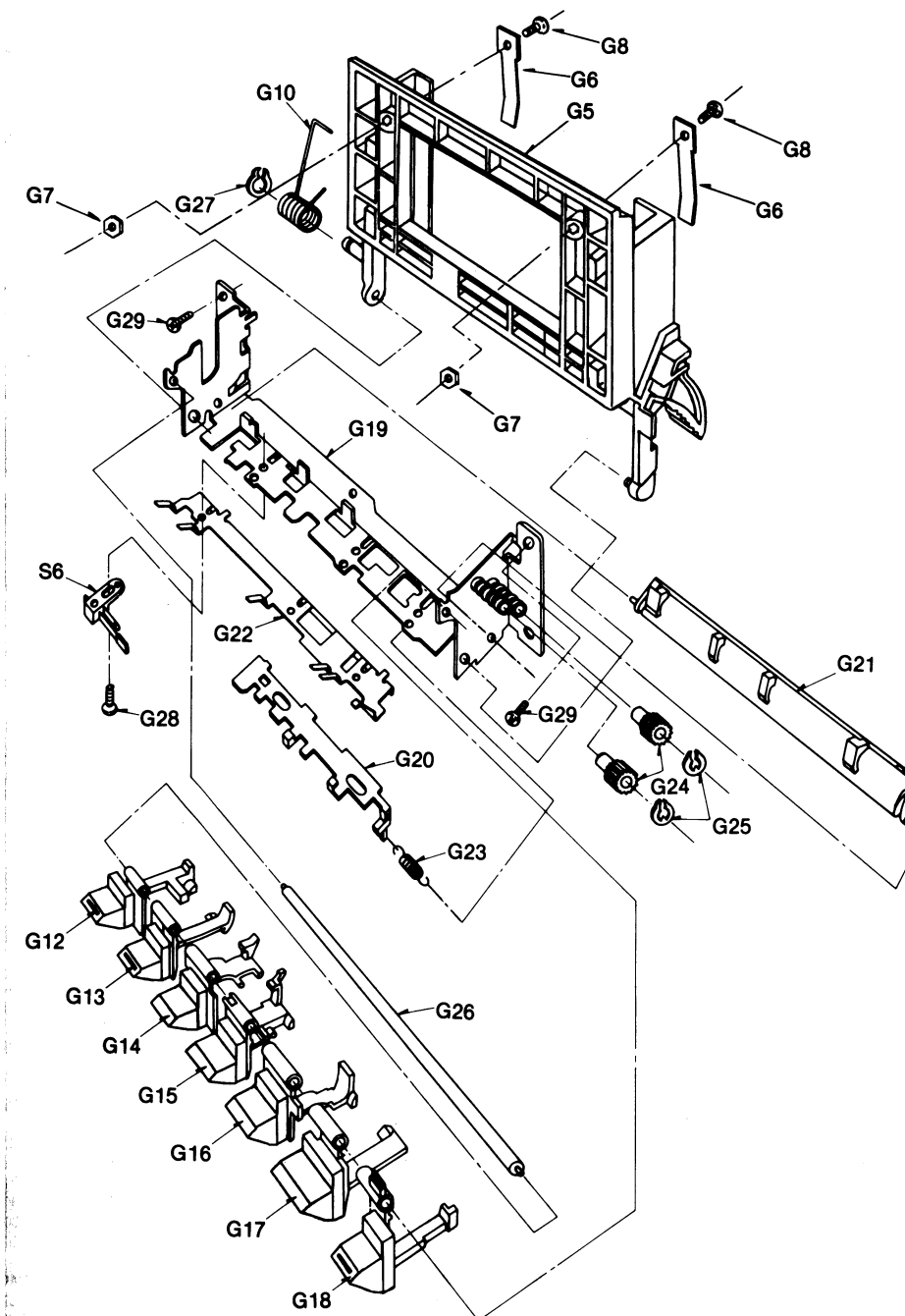
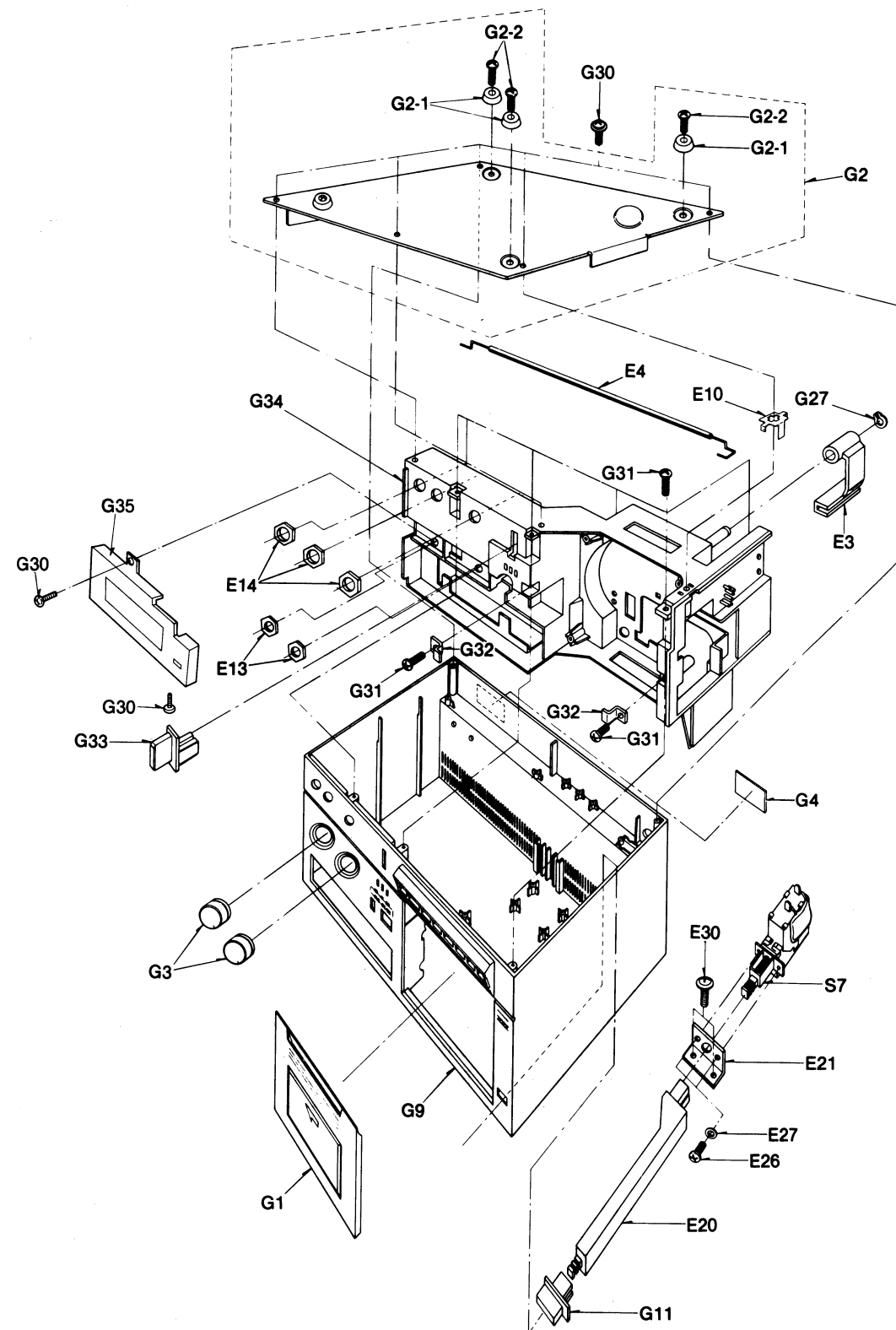
Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
MECHANICAL PARTS											
M1	QBP1874	Cassette Pressure Spring	M28	QBN1746	Auto-Stop Lever Spring	M54	QX10113	Fast Forward Idler Assembly	M80	QML3580	Record/Playback Selection Lever
M2	QDG1201	Main Gear	M29	QBN1747	Connection Spring	M55	QX10112	Rewind Idler Assembly	M81	QBT1895	Record/Playback Selection Lever Spring
M3	QDG1202	Sub Gear	M30	QBS1128	Lock Pin	M56	QXL1383	Fast Forward Arm Assembly	M82	QXP0607	Fast Forward Connection Pulley Assembly
M4	QMB1336	Supply Reel Table Hub	M31	QBC1372	Reel Table Spring	M57	QMK1840	Head Base Plate	M83	QMK1838	Upper Base Plate
M5	QDR1139	Supply Reel Table	M32	QBW2008	Poly Washer 2φ	M58	QMZ1241	Head Spacer	M84	XSN3+5S	Screw ⌀3×5
M6	QMF2118	Fast Forward Arm Bracket	M33	XUB4FT	Stop Ring 4φ	M59	QBN1740	Head Pressure Spring	M85	QDP1828	Fast Forward Pulley
M7	QML3581	Sub Control Lever	M34	XUB3FT	Stop Ring 3φ	M60	QBC1278	Head Spring (for Record/Playback Head)	M86	QXH0357	Chassis Cover Assembly
M8	QML3583	Main Control Lever	M35	QBW2012	Poly Washer	M61	QBCA0008	Head Spring (for Erase Head)	M87	QXC0067	Tape Counter
M9	QML3584	Record Operation Lever	M36	QXL1354	Sub Lever Assembly	M62	QML3591	Brake Arm	M88	QDB0207	Counter Belt
M10	QML3586	Head Base Plate Lift Lever	M37	QXL1355	Main Lever Assembly	M63	QMZ1240	Sub Head Base Plate	M89	QMAM0130	Counter Angle
M11	QML3594	Auto-Stop Release Arm	M38	QML3582	Pause Lock Lever	M64	QMN2550	Roller	M90	XWC26B	Washer 2.6φ
M12	QML3603	Erase Safety Lever	M39	QBT1896	Lever Release Spring	M65	QDK1017	Steel Ball 2φ	M91	XSN26+6	Screw ⌀2.6×6
M13	QML3604	Auto-Stop Driving Lever	M40	QXL1381	Pressure Roller Assembly	M66	QBP1873	Head Base Plate Pressure Spring	M92	XTN26+6B	Tapping Screw ⌀2×6
M14	QML3605	Auto-Stop Detection Lever	M41	QBN1743	Pressure Roller Spring	M67	QBT1597	Brake Arm Spring	M93	XTN26+6B	Tapping Screw ⌀2.6×6
M15	QML3592	Change Lever	M42	QML3588	Fast Forward Lever	M68	QBT1892	Head Release Spring	M94	XTN26+10B	Tapping Screw ⌀2.6×10
M16	QMR1820	Record Rod	M43	QBN1748	Fast Forward Spring	M69	QMA3858	Head Adjustment Plate	M95	XTN26+12B	Tapping Screw ⌀2.6×12
M17	QMR1821	Auto-Stop Connection Rod	M44	QMA4063	Flywheel Retainer	M70	QXG1047	Takeup Gear Assembly	M96	XTN3+10B	Tapping Screw ⌀3×10
M18	QMR1822	Eject Rod	M45	QMA3920	Detection Lever Angle	M71	QXU0170	Motor Assembly	M97	XTN3+24B	Tapping Screw ⌀3×24
M19	QMR1824	Control Rod	M46	QMS2546	Detection Lever Shaft	M72	QXK2286	Sub Chassis Assembly	M98	XSN26+3	Screw ⌀2.6×3
M20	QMZ1239	Flywheel Thrust Retainer	M47	QMF1682	Switch Retaining Plate	M73	QDG1199	Auto-Stop Gear	M99	XSN2+10	Screw ⌀2×10
M21	QBC1357	Lock Pin Pressure Spring	M48	XSN2+6	Screw ⌀2×6	M74	QDG1200	Cam Gear	M100	QBN1741	Change Lever Spring
M22	QBT1682	Auto-Stop Connection Rod Spring	M49	QXF0164	Flywheel Assembly	M75	QDP1823	Connection Pulley	M101	XWG2	Washer 2φ
M23	QBT1894	Main Lever Spring	M49-1	QBW2049	Poly Washer	M76	QDB0281	Capstan Belt	M102	QML3644	Tape Detection Lever-A (for Metal Tape)
M24	QBN1739	Selection Lever Spring	M49-2	QBW2026	Washer	M77	QDB0273	Fast Forward Belt	M103	QML3645	Tape Detection Lever-B (for CrO ₂ Tape)
M25	QBN1742	Pressure Roller Release Spring	M50	QXD1143	Takeup Reel Table Assembly	M78	QDB0274	Takeup Belt	M104	QBW2085	Poly Washer
M26	QBN1744	Sub Gear Spring	M51	QXL1382	Idler Lever Assembly	M79	QXL1360	Record/Playback Selection Arm Assembly			
M27	QBN1802	Main Gear Spring	M52	QX10111	Takeup Idler Assembly						
			M53	QBT1893	Takeup Idler Spring						

When servicing this mechanism unit, refer to the disassembly notes and assembly instructions described in the service manuals of RS-M51, RS-M13, RS-M14 and RS-M04 (RS-M24 mechanism series).

SPECIFICATIONS

Pressure of pressure roller	350 ± 50 g
Takeup tension • Use cassette torque meter ... QZZSRKCT	45 \pm 15 - 10 g·cm
Wow and flutter; (JIS) • Use test tape ... QZZCWAT	Less than 0.06% (WRMS)

CABINET PARTS LOCATION



REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description
CABINET PARTS		
G1	QYFM0049	Cassette Lid Assembly
G2	QYCM0028	Bottom Cover
G2-1	QKA1083	Rubber Foot
G2-2	QHQ1299	Step Screw
G3	QYT0615	Input Level Control Knob Assembly
G4	QGS0143	Main Name Plate
*For all European areas except United Kingdom.		
	QGS0144	"
*For United Kingdom.		
G5	QKFM6007K	Cassette Holder
G6	QBP1899	Holder Spring
G7	XNG2E	Nut 2φ
G8	XSN2+5	Screw 2×5
G9	QYMM0079	Main Case Assembly
*For all European areas except United Kingdom.		
	QYMM0078	"
*For United Kingdom.		
G10	QBN7008	Cassette Holder Spring
G11	QGM00039	Power Button
G12	QXL1441	Eject Button Assembly
G13	QXL1442	Record Button Assembly
G14	QXL1443	Rewind/Review Button Assembly
G15	QXL1444	Fast Forward/Cue Button Assembly
G16	QXL1445	Playback Button Assembly
G17	QXL1446	Stop Button Assembly
G18	QXL1447	Pause Button Assembly
G19	QXA1044	Operation Button Angle Assembly
G20	QMR1823	Obstruction Rod
G21	QML3593	Lock Arm
G22	QBP1875	Obstruction Lever Spring
G23	QBT1597	Obstruction Rod Spring
G24	QDG1102	Holder Gear
G25	XUC4FT	Stop Ring 4φ
G26	QMN2554	Operation Lever Shaft
G27	XUB5FT	Stop Ring 5φ
G28	XTN2+6B	Tapping Screw 2×6
G29	XTN26+6B	Tapping Screw 2.6×6
G30	XTB3+10BFN	Tapping Screw 3×10
G31	XTN3+12B	Tapping Screw 3×12
G32	QAM0129	Stopper
G33	QGM00038	Switch Button (for Dolby NR)
G34	QKJM0065	Mechanism Angle
G35	QGKM0151	Meter Cover
ACCESSORY		
A1	QQT3040	Instruction Book
*For all European areas except United Kingdom.		
	QQT3041	"
*For United Kingdom.		
PACKINGS		
P1	QPNM0161	Inside Carton
P2	QPAM0040	Cushion-R
P3	QPAM0041	Cushion-L
P4	QPG1983	Pad
P5	XZB40X50A02	Poly Bag

Service Manual

Metal Tape Compatible Stereo Cassette Deck with
Soft-Touch Controls and Auto-Tape Selector

Cassette Deck

RS-M07
(Black Face)



This is the Service Manual for the following areas.

☒ For all European areas except United Kingdom.

RS-M24 MECHANISM SERIES

- Please use this manual together with the service manual for model No. RS-M07 (Silver Face: order No. ARD-81040044C2-13).

PARTS COMPARISON TABLE:

Please revise the original parts list in the Service Manual RS-M07 (Silver Type) to conform to the changes shown herein.
If new part numbers are shown, be sure to use them when ordering parts.

Ref. No.	Parts Name	Part Numbers	
		Silver Type (Original)	Black Type
M86	Chassis Cover Assembly	QXH0357	QXH0357K
G1	Cassette Lid Assembly	QYFM0049	QYFM0049K
G9	Main Case Assembly	QYMM0079	QYMM0083
G35	Meter Cover	QGKM0151	QGKM0151K
A1	Instruction Book	QQT3040	QQT3101

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Technics

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